

ABSTRACT

5 The present invention provides for improvement of ductility and strength performance of connections in structural steel buildings made typically with rolled structural shapes, specifically in bolted and/or welded beam-to-column connections with welded flanges, by greatly reducing the very significant uneven stress distribution found in the conventionally designed connection at the column/beam weld, through use of slots in column and/or beam webs with or without continuity plates in the area of the column between the column flanges, as well as, optionally, extended shear plate connections with additional columns of bolts for the purpose of reducing the stress concentration factor in the center of the flange welds. Moreover, the slots in beam web adjacent to the beam flanges allow the beam web and flange to buckle independently thereby eliminating the degrading of the beam strength caused by lateral-torsional bucking.